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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN THE MATTER OF THE APPLICATION FOR PATENT

OF: Hans-Juergen LOHMANN et al. | Art Unit: 2123

USSN: 09/934,907 |

FILED: August 22, 2001 |

FOR: Method of Automatically Configuring
Arrangements of Components and
Automatically Generating Production
Documents

RECEIVED

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Technology Center 2100

ASSISTANT COMMISSIONER FOR PATENTS

WASHINGTON, D. C. 2023

December 5, 2001

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

- 1) Pursuant to 37 C.F.R. §§ 1.56, 1.97 and 1.98 applicants enclose a Form PTO-1449 and copies of the references listed thereon.
- 2) This Information Disclosure Statement is being filed before the mailing of a first Office Action on the merits, to the best knowledge of the undersigned attorney, in accordance with 37 C.F.R. 1.97(b)(3). Thus, a fee is not due for the submission of the present Information Disclosure Statement. Nonetheless, if

any fee is properly required in connection with this submission, it may be charged to Deposit Account 50-0507.

- 3) Reference AA (article by Guenter Spur entitled "Das digitale Produktmodell als virtueller Prototyp") discusses virtual methods and systems of product development, planning, modeling and prototyping. The article includes an English summary on the last page, i.e. 375. More particularly, the discussion relates to the development of a virtual product, or virtual product model, which is stored in a manipulatable manner in digital form in a computer system. The building blocks or tools of such a virtual product development system include geometric modeling systems, feature processing systems, graphical drawing or illustration systems, data management systems, simulation systems, knowledge based systems, and management systems. In the left column on page 371, the article refers to various known English terms for tools or building blocks of such systems, such as computer aided design (CAD), computer aided process planning (CAPP), etc. Data, functional, and process chains are to be established using such building blocks. In the phase of product planning, the concrete requirements are established in the virtual product model by means of definition of the product characteristics that are relevant in the market. The further construction of the product model is carried out in an object and method oriented manner. It is attempted to acquire and incorporate in a relevant manner into the model, all pertinent knowledge that can be obtained in connection with the product. It is a goal in the modeling to determine and take into consideration the geometrical,

technological, physical, stylistic, and environmental characteristics of the new product before the product actually physically or really exists. The modeling process is based on the product characteristics planning, that is to say on a model of material-geometric product functions, which makes it possible to realize the fabrication of the product through virtual production preparation. The dilemma in this context, is that the optimal solution cannot be clearly and directly determined from the model of the requirements. Instead, a single optimal structural solution cannot always be found. In practice, usually, a solution is selected among several acceptable solutions, which is considered to be especially advantageous under the given conditions. In the virtualization of the assembly process, complex products are assembled from several components and subassemblies. It is mentioned that in the future, in addition to a simple geometric positioning of the components, above all the modeling of dependencies between the various components will become evermore necessary.

- 4) Reference AB (article by Horst Meier et al. entitled "Virtuelle Welten, Neue Dimensionen fuer den Werkzeugmaschinenbau") discusses proposals for transitioning from traditional two-dimensional product development and construction to three-dimensional simulations for product development by means of virtual reality, as especially applied to 3-D simulation of machine tools. The article includes an English summary on page 568.

- 5) Reference AC (article by F.-L. Krause et al. entitled "STEP-basierte Informationsmodelle fuer die Produktentwicklung") includes an English summary on page 316. The article discusses the so-called "STEP" norm or standard, "product data representation and exchange" which aims to provide a standard for product data defining product features throughout the entire product life cycle. In the product design stage, relevant products are structured and provided in a computer internal representation. Prescribed technical data, for example, define the required construction space or volume, and provide a basis for determining a minimum envelope or enclosure volume. Ergonomic prescribed data include measurements and geometrically definable templates of anthropometric relationships. Dimensional prescribed data directly describe the form to be realized. Regulatory requirements or prescribed data relate to required standards, regulations, and the like. The overall system includes an object oriented databank for the integrated depiction and for exchange of product information, and for providing interfaces for importing and exporting physical files. Prototypes of CAD systems for the parametric description of the product form, will make it possible to neutrally describe and process user-defined, application-specific features. A concept has been developed to carry out the exchange of parametric semantic building block descriptions through representation of the development history. Instead of geometric primitive forms such as a cone or a torus, predefined and user defined features are referenced. Any desired functional

relationships and required conditions are also to be represented. The representation of product structures is also necessary for the handling of component assemblies. Parametric relationships and interconnections must be able to be produced, not only between assemblies and individual components, but also between assemblies and features. In a quality management system, requirements are represented in a requirements model, which is an integral component of the product model. In the requirements model, all of the information is represented, which describes the desires or requirements of the customer or the target focus group as well as other prescribed requirements such as regulatory requirements that must be taken into consideration. Using this requirements model, any deviations of a product characteristic from the corresponding requirements can be determined, so as to determine the extent to which the newly developed product corresponds to the requirements of the customer.

- 6) References AD and AE are in English. Therefore no further discussion of these references is required.
- 7) Applicants respectfully request that the Examiner consider all references of record, return an initialled copy of the enclosed Form PTO-1449 and ensure that all references of record are printed on any patent issuing from this application.

- 8) Favorable consideration and allowance of claims 1 to 20 are respectfully requested.

Respectfully submitted,

Hans-Juergen LOHMANN et al.
Applicant

WFF:ar/4215
Enclosure: postcard,
Form PTO-1449,
5 references

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CERTIFICATE OF MAILING:

I hereby certify that this correspondence with all indicated enclosures is being deposited with the U. S. Postal Service with sufficient postage as first-class mail, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D. C. 20231, on the date indicated below.

Walter F. Fasse 12/5/01
Name: Walter F. Fasse - Date: December 5, 2001



LIST OF REFERENCES CITED BY APPLICANT

(REVISED FORM PTO-1449)

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U. S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NO.	DATE	NAME	Cl.	Sub- Cl.	Fil. Date

FOREIGN PATENT DOCUMENTS

	DOCUMENT NO.	DATE	COUNTRY	Cl.	Sub- Cl.	Trans.	
						Yes	N

OTHER DOCUMENTS

AA	Guenter Spur, "Das digitale Produktmodell als virtueller Prototyp" ZWF Virtuelle Produktentstehung; Carl Hanser Verlag, Muenchen, Federal Republic of Germany ZWF, (1999), pages 370-375.
AB	Horst Meier et al., "Virtuelle Welten", ZWF Virtualisierung, Carl Hanser Verlag, Muenchen, Federal Republic of Germany ZWF, (1999), pages 566-569.
AC	F.-L. Krause et al., "STEP-basierte Informationsmodelle für die Produktentwicklung", Entwicklung und Konstruktion, Carl Hanser Verlag, Muenchen, Federal Republic of Germany, (1996), ZWF, pages 316-322.
AD	A. Gayretli, et al., "An object-oriented constraints-based system for concurrent product development", Robotics and Computer-Integrated Manufacturing 15 (1999) 133-144, published by Elsevier Science Ltd.
AE	The Boeing Company, 777 Computing Design Facts, 2001, Background Info, Technical Specs., Boeing Company internet website.

EXAMINER

DATE CONSIDERED

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.